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ABSTRACT

Although scholars have called for greater attention to informational texts in the early grades for some time, there have been few data available about the degree to which informational texts are actually included in early grade classrooms, and in what ways. This study provides basic, descriptive information about informational text experiences offered to children in 20 first-grade classrooms selected from very low- and very high-SES (socio-economic status) school districts. Each classroom was visited for 4 full days over the course of a school year. On each visit, data were collected about the types of texts on classroom walls and other surfaces, in the classroom library, and in classroom written language activities. Results show a scarcity of informational texts in these classroom print environments and activities--there were relatively few informational texts included in classroom libraries, little informational text on classroom walls and other surfaces, and a mean of only 3.6 minutes per day spent with informational texts during classroom written language activities. This scarcity was particularly acute for children in the low-SES school districts, where informational texts composed a much smaller proportion of already smaller classroom libraries, where informational texts were even less likely to be found on classroom walls and other surfaces, and where the mean time per day spent with informational texts was 1.9 minutes, with half the low-SES classrooms spending no time at all with informational texts during any of the 4 days each was observed. Strategies for increasing attention to informational texts in the early grades are presented. Contains 100 references, and 5 figures and 4 tables of data. (RS)

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CIERA REPORT

The Scarcity of Informational Texts in First Grade

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CIERA REPORT #1-007
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CIERA Inquiry 1: Readers and Texts
What sorts of experiences do first-grade students have with informational text? Can increased exposure to informational text in the early grades influence children's ability to read and write it successfully later on?

Although scholars have called for greater attention to informational texts in the early grades for some time, there have been few data available about the degree to which informational texts are actually included in early grade classrooms, and in what ways. This study provides basic, descriptive information about informational text experiences offered to children in 20 first-grade classrooms selected from very low- and very high-SES school districts. Each classroom was visited for four full days over the course of a school year. On each visit, data were collected about the types of texts on classroom walls and other surfaces, in the classroom library, and in classroom written language activities. Results show a scarcity of informational texts in these classroom print environments and activities—there were relatively few informational texts included in classroom libraries, little informational text on classroom walls and other surfaces, and a mean of only 3.6 minutes per day spent with informational texts during classroom written language activities. This scarcity was particularly acute for children in the low-SES school districts, where informational texts composed a much smaller proportion of already smaller classroom libraries, where informational texts were even less likely to be found on classroom walls and other surfaces, and where the mean time per day spent with informational texts was 1.9 minutes, with half the low-SES classrooms spending no time at all with informational texts during any of the four days each was observed. Strategies for increasing attention to informational texts in the early grades are presented.

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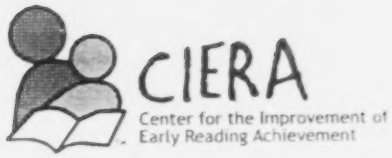

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The Scarcity of Informational Texts in First Grade

Nell K. Duke
Michigan State University

In this "Information Age" the importance of being able to read and write informational texts critically and well cannot be overstated. Informational literacy is central to success, and even survival, in advanced schooling, the workplace, and the community. A primary aim of American education is to develop citizens who can read, write, and critique informational discourse—who can locate and communicate the information they seek.

Despite the clear importance of informational literacy, we fail to develop strong informational reading and writing skills in many American students (e.g., Applebee, Langer, Mullis, Latham, & Gentile, 1994; Daniels, 1990; Langer, Applebee, Mullis, & Foertsch, 1990). Disturbingly, this is particularly true for students from traditionally disenfranchised social groups, a fact of grave concern given the importance of informational texts in American citizenship, higher education, and work.

Our failure to develop adequate informational reading and writing skills in many students has long been recognized. Some scholars have even linked these failures to larger deficiencies in achievement. Chall, Jacobs, and Baldwin (1990) have suggested that difficulties with informational reading may explain the fourth-grade slump in overall literacy achievement and progress. More recently, the work of Bernhardt, Destino, Kamil, and Rodriguez-Munoz (1995) suggested that low levels of achievement in science may be linked, in part, to problems with informational reading and writing, as science achievement is correlated with informational reading ability, but not with the ability to read other forms of discourse examined.

Perhaps the most common and long-standing response to concerns about poor informational reading and writing skills has been to call for providing students with more experience with informational texts, particularly in the early grades (e.g., Christie, 1987a; Freeman & Person, 1992; Hiebert & Fisher, 1990; Lemke, 1994; Littlefair, 1991; Newkirk, 1989; Pappas, 1991a; Sanacore, 1991). Many scholars have suggested that providing more experience with informational texts in the early grades may help to mitigate the substantial difficulty many students have with this form of text in later schooling.

In recent years, arguments for increasing attention to informational texts in the early grades have gone beyond preparing children for *later* schooling and life. Scholars have pointed out that informational texts can play an important role in motivating children to read in the first place. Some young children find a way into literacy through informational texts that they do not find through narrative and other forms of text (Caswell & Duke, 1998). Informational texts can capitalize on children's interests and curiosities, provide opportunities for children to apply and further develop areas of expertise, and provide valuable links to children's home literacy experiences (Caswell & Duke, 1998; Duthie, 1996; Guthrie & McCann, 1997; Moss, Leone, & DiPillo, 1997; Oyler, 1996; for a related discussion pertaining to secondary and adult readers, see Alexander, 1997). Being more interested in and engaged by text can have a significant impact on learning and development (e.g., Renninger, Hidi, & Krapp, 1992). Thus, even if the early grades are exempt from the responsibility of beginning to develop children's informational literacy for later schooling and life, there are still many reasons to include informational texts early in schooling. Not doing so constitutes a missed opportunity to turn as many students as possible on to literacy.

Although the base of support for greater attention to informational texts in the early grades is wider than ever, there remain few data about the extent to which informational texts are actually included in early grade classrooms. Examination of basal reading series has shown little presence of informational texts (Hoffman et al., 1994; Moss & Newton, 1998), but more comprehensive data about the inclusion of informational texts in early grade classrooms have not been available. We simply do not know how much experience students have with informational texts in school, what kinds of experience are offered, or how this might differ in different schooling contexts.

The purpose of this study is to begin to address the dearth of knowledge about students' experiences with informational texts in the early grades. The study examines the nature and degree of informational text experiences offered to children in 20 first-grade classrooms in two distinct socioeconomic settings in the Greater Boston Metropolitan Area.

Conceptual Framework

This study is built upon the belief that discourse knowledge has a substantial impact on the lives of individuals and groups (Hodge & Kress, 1988; Lemke, 1989). The forms of discourse with which one is and is not fluent affect the way one is viewed by others, one's ability to function in different social contexts, and, ultimately, the opportunities available in one's communities, schooling, and work (Bourdieu, 1991; New London Group, 1996). To be fluent in a type of discourse valued in a particular social setting or group is something of real value—a specific form of cultural capital. I term *semiotic capital*. Imparting semiotic capital is an important part of enculturation both within and outside formal schooling.

The ability to read and write informational texts is one form of semiotic capital valued in multiple settings in advanced schooling, community, and work. An important mission of American schooling is to develop this ability in students. Yet, as noted earlier, large numbers of students are unable to read and write informational text critically and well, and this is disproportionately true for students from traditionally disenfranchised social groups. For this reason, this study examines informational text experiences offered to students from two distinct socioeconomic settings, to ascertain whether opportunities to acquire informational discourse knowledge differ in these two schooling contexts.

For the purposes of this study, informational texts are defined as texts and contexts having many or all of the following features: (a) a function to communicate information about the natural or social world, typically from one presumed to be more knowledgeable on the subject to one presumed to be less so; (b) an expectation of durable factual content; (c) timeless verb constructions; (d) generic noun constructions; (e) technical vocabulary; (f) classificatory and definitional material; (g) compare/contrast, problem/solution, cause/effect, or like text structures; (h) frequent repetition of the topical theme; and (i) graphical elements such as diagrams, indices, page numbers, and maps (Christie, 1984, 1987b; Derewianka, 1990; Duke & Kays, 1998; Jan, 1991; Pappas, 1986, 1987).

For the purposes of this study, I divided informational texts into three types: *informational, narrative-informational,* and *informational-poetic*. Narrative-informational text is defined as narrative text in which a primary purpose is to convey information about the natural or social world, and in which functional and linguistic features listed above are widely employed. For example, the *Magic School Bus* (e.g., Cole, 1990) books are narrative-informational. Informational-poetic is defined as poetry in which a primary purpose is to convey information about the natural or social world, and in which linguistic features listed previously are widely employed. For example, the poem *Dogs and Cats and Bears and Bats* about characteristics of mammals is considered informational-poetic ("Mammals are a varied lot; some are furry, some are not. . ."). Texts coded as informational alone are neither narrative nor poetic in form. Examples of books coded as informational include *The Honeymakers* (Gibbons, 1997) and *Round and Round the Money Goes: What Money Is and How We Use It* (Berger, 1993b).

There are two points of note about my approach to defining informational text. First, in this approach there is attention to both specific linguistic features of text and to functions, audiences, and contexts of the texts. This is congruent with much recent work on genre from a range of scholars (e.g., Cope & Kalantzis, 1993; Freedman & Medway, 1994; Paré & Smart, 1994). Second, in this approach to defining informational texts, no one feature necessarily determines whether or not a text is considered informational. Rather, informational texts are seen as having several among a group of features. In this way, my approach is more akin to that of prototype theory (Rosch, 1976) or feature analysis approaches (e.g., McNeil, 1992), than to a definitional or entailment approach. The appropriateness of using this approach to genre classification is supported by the very high levels of interrater reliability yielded in this study. As difficult as it may be to define informational text rigidly or absolutely, we know it when we see (and don't see) it—mean interrater reliability estimates for judgments about whether or not

a text was informational were 99.6%, 97.9%, and 99.6% for the three types of data collected in this study. Multiple examples of texts coded as informational are described in the *Results* section of this paper.

Assumptions About Genre Development

Questions about how children develop knowledge of a particular form of discourse, how this development is best facilitated, and even what this knowledge consists of, are all areas in need of a great deal more research. There is relatively little empirical guidance, and far from theoretical consensus, on the subject of genre development. That having been said, this study does rest on some assumptions about the development of knowledge of informational text genres and other genres of written language. The reader should be aware of these assumptions, as they impact the ways the data were analyzed and the findings interpreted.

Development is Genre-Specific

I assume that development of genre knowledge proceeds in a genre-specific matter. That is, I assume that one learns how to read or write a genre through experience *with that genre*; experience with other genres may be helpful, but will not suffice. So, for example, all the experience in the world reading and writing comic books will not by itself render someone able to read or write a cookbook. Similarly, extensive experience with storybooks, while beneficial in many respects, will not alone result in children being able to read and write information books. Learners must have experience with the particular genres in question in order to fully develop the ability to read and write (in) those genres.

Although little research takes up the question of genre-specificity in development directly, there is research that speaks indirectly to this issue. One suggestive line of research indicates that children who repeatedly hear particular genres read to them either at home (Harste, Burke, & Woodward, 1981; Purcell-Gates, 1988), or at school (Duke & Kays, 1998; Pappas, 1993; Purcell-Gates, McIntyre, & Freppon, 1995), are able to reproduce those particular genres when pretending to read themselves. Harste et al. (1981) recorded three- to six-year-old children's pretend readings of stories, letters, and environmental print embedded in and removed from their contexts. They report many examples in which children as young as three offered pretend readings of the written texts with features specific to the particular genre of the text they were pretending to read. Children produced different readings of different genres.

In related work, Purcell-Gates (1988) asked kindergarten-aged children who had been read aloud to at least five times per week from at least two years prior to kindergarten to pretend to read a wordless picture book clearly suggestive of a fictional narrative, fairy tale genre. She found that children produced readings containing many linguistic features of the language of this

genre such as a formulaic opening (*Once upon a time...*), use of attributive adjectives (e.g., *the beautiful princess*), and stacking of prepositional phrases (e.g., *at the entrance of the little castle*). Later research (Purcell-Gates et al., 1995) established that, over the two-year (kindergarten and first grade) time period studied, young children who began school with little or no knowledge of written fictional narrative language acquired this knowledge after regular, in-school experience with texts of this type.

Duke and Kays (1998) examined kindergarten-aged children's knowledge of another genre—information books—before and after they had been exposed to a substantial number of texts in this genre. Children's pretend readings of an unfamiliar, wordless information book after three months of exposure to information books reflected greater knowledge of several features characteristic of the information book genre, such as the use of timeless present tense verb constructions and generic noun structures (*firefighters fight fires* versus *the firefighter is fighting a fire*). With no explicit instruction or guidance, children's response to hearing information books read aloud on a regular basis involved attending to features of that genre and (re)producing those features in a pretend-reading context.

In related work, Pappas (1993) asked kindergarten children, on three occasions each, to pretend to read prototypical information books or prototypical storybooks that had been read to them immediately before. Children were not directed toward particular features of any of the books or their genres. Nonetheless, children's readings increasingly approximated the actual texts, with moves toward greater use of characteristic features of each genre, such as co-classification and present tense, in the case of information books, and co-referentiality and past tense, in the case of fictional storybooks. Children spontaneously attended to these genre-specific features and then distinguished their readings accordingly. Taken together, work by Duke and Kays (1998), Pappas (1993), Purcell-Gates (1988), and Purcell-Gates et al. (1995) demonstrates children's attention to specific genre features and their ability to (re)produce those features in genre-appropriate contexts. Other studies can be interpreted similarly (e.g., Bissex, 1980; Chapman, 1995; Hidi & Hildyard, 1983; Kroll, 1991; Langer, 1985). At least indirectly, this work suggests that schools must provide students with experience with the specific genres of written language we wish them to acquire.

Genre Development Requires Substantial Experience With the Genre

A second assumption of this study is that substantial experience with a genre is typically necessary for knowledge of that genre to develop, or at least to develop fully. One does not learn to write academic journal articles successfully by reading only one; one is a better reader of how-to books after reading dozens than after reading one's first. Similarly, we must assume that in order to become strong readers and writers of informational texts, a learner would need substantial experience comprehending and producing such text. Children must see, hear, read, and write informational texts before they have any hope of reading and writing them well.

While there is a great deal of agreement about the necessity of substantial or ongoing experience with a genre (e.g., New London Group, 1996), there is

currently no empirical research available to speak to the question of how much experience with a given form of written text is necessary for a particular level of acquisition, or how this might differ across individuals, cultures, and circumstances. Some have speculated that there may be a threshold of textual experience beyond which *more* experience will not facilitate acquisition (e.g., Freedman, 1994). Others have suggested that *less* experience with school-valued forms of text at home may be largely to blame for low-socioeconomic-status (low-SES) students' relatively weaker grasp of these forms (e.g., Delpit, 1988; Purcell-Gates, 1995). In this study, the amount of textual experience offered to first-grade children in school was examined. Although the study does not determine how much experience is enough, it will provide currently unavailable descriptive information about amounts of experience with informational texts offered in first-grade classrooms, allowing scholars to evaluate current experiential offerings from an empirical basis.

The Nature of Genre Experience Matters Too

It would be naive to think that raw amount of genre experience alone determines one's success at learning to comprehend and produce that genre. Many other aspects of genre experience must also be important. For example, the experience of listening to others read a particular kind of text aloud may contribute differently to genre development than the experience of reading that kind of text oneself. Producing a genre for authentic audiences and purposes may be more educational than practicing such production solely for the teacher for a classroom assignment. Unfortunately, as with the other assumptions about genre development laid out previously, there is currently little research that speaks directly to the relative value and differential contributions of different kinds of genre experiences. One area that has received a great deal of rhetorical attention, though less actual research, regards the explicit teaching of genre. In the United States (e.g., Delpit, 1992; Gee, 1992) and to a greater extent abroad (e.g., Freedman & Medway, 1994; Kaufman & Rodriguez, 1993; Reid, 1987), there has been considerable discussion of, and disagreement about, whether and when to provide children with explicit instruction in the features and functions of particular forms of discourse. Again, this study is not designed to address the question of what kinds of genre experiences best facilitate development (and for what students under what conditions). However, it does provide currently unavailable descriptive information about the nature of experiences with informational texts offered to first grade children, again allowing researchers to evaluate current experiential offerings from an empirical basis.

Genre Development is Possible at Young Ages

Finally, I assume that genre development begins early in the lives of children. That is, I assume that even very young children can and do begin to develop knowledge about particular genres they encounter at home, at school, and in their community (e.g., Harste et al., 1984). While the general notion that genre development can and does occur at very young ages has not been par-

ticularly controversial, there has been controversy about young children's ability to interact with certain genres of written language. Relevant to the study at hand, there is debate about whether young children are able to handle non-narrative genres. Some contend that young children are unable to learn from and about texts unless they are in the form of stories, or that, at the very least, their development is *better* facilitated by storied forms (Britton, Burgess, Martin, McLeod, & Rosen, 1975; Egan, 1986, 1993; Moffett, 1968; Sawyer & Watson, 1987). They believe that there exists a developmental progression from story forms to other forms of text, with young children's understanding and interest remaining confined to stories. Moffett (1968) suggests that young children's limited abstracting ability restricts them to understanding only storied forms. Egan (1993) concludes that, for young children, narratives are "the best tools for the educational job" (p. 220).

Increasingly, scholars are drawing into question this notion that narrative is somehow primary in children's development, and that it alone should usher children through their first years of schooling. An emerging body of work suggests that young children can learn from and about non-narrative, informational texts if they are exposed to them (e.g., Caswell & Duke, 1998; Christie, 1987a, 1987b; Donovan, 1996; Duke & Kays, 1998; Hicks, 1995; Newkirk, 1987; Pappas, 1991b, 1993). Hicks (1995) documented a classroom of first-grade children who were able to interact with expository oral and written texts in impressive ways given a classroom environment rich in such texts. Work by Pappas (1993) and Duke and Kays (1998) described earlier demonstrates that kindergarten-aged children are able to produce pretend readings of information books with several features specific to informational genres given experience with such texts.

Importantly, the literature not only indicates that young children can interact successfully with informational texts, but that they actually enjoy doing so. The literature contains numerous reports of young children deeply engaged with informational texts (e.g., Duthie, 1996; Fisher, 1994; Guillaume, 1998; Kamil & Lane, 1997; Newkirk, 1989; Richgels, 1997). There is evidence that, for some children, informational texts can even act as a catalyst for overall literacy development (Caswell & Duke, 1998; Duthie, 1996). On the basis of currently available literature on the subject, I assume that inattention to informational texts in the early grades cannot be justified on the basis that young children are unable to work with or enjoy these forms of text.

Given these assumptions—that children can begin to learn and benefit from informational text experiences very early in schooling, and that substantial experience specifically with informational texts is essential for informational genre development to occur, I ask the question: How much exposure to and experience with informational text is offered to students in their crucial first-grade year, and what kinds of experiences are offered?

Method

Sample

In order to begin to build an empirical base of information about the inclusion of informational texts in early-grade classrooms, I conducted a descriptive, observational study of 20 first-grade classrooms in 10 school districts in the Greater Boston Metropolitan Area. Among the aims of the research project is a comparison of print environments and experiences offered to students in very low- and very high-SES school districts. Thus, districts of study were selected from among over 50 school districts in the area on the basis of measures of levels of education, poverty, and per capita income in the district (Entwisle & Astone, 1994; see Table 1). Specifically, 10 first-grade classrooms were chosen from among the 6 highest SES school districts in the area, and 10 first-grade classrooms were chosen from among 4 of the 6 lowest SES districts in the area. The number of classrooms drawn from each district was based upon the number of schools in the district. From among the high-SES districts I chose 1 classroom each from 3 districts, 2 classrooms each from 2 districts, and 3 classrooms from 1 district. From among the low-SES districts I chose 2 classrooms each from 2 districts and 3 classrooms each from 2 districts.

Table 1: Socioeconomic Information About School Districts Participating in the Study, Expressed as Means*

	Selection Criteria			Other Information		
District Type	Per Capita Income	% Families Below Poverty	% Residents With Bachelor's Degrees	Elementary Per Pupil Expenditure	MEAP† Reading Scores	% Going on to 4-Year College
Low-SES	14,400	11.4	17.0	5,800	1,245	40.0
High-SES	39,200	1.0	63.9	5,600	1,470	87.7
State Average	17,200	6.7	27.2	4,100	1,350	52.0

* Note: Means are used to obscure the identity of participating districts. Information is based on 1990 census data as reported in the Massachusetts Executive Office of Education's School District Profiles.

† MEAP is the Massachusetts Educational Assessment Program.

Being at socioeconomic extremes for the area, the districts are fairly socioeconomically homogeneous—the low-SES districts would have few middle or high-SES students, and the high-SES districts would have few low- or middle-SES students. The socioeconomic homogeneity of the districts is bolstered by the fact that the Greater Boston Metropolitan Area is relatively socioeconomically segregated, and because it is composed of many relatively small school districts rather than a smaller number of larger, and thus likely more diverse, school districts. Although differences between classrooms in low- and high-SES districts are not the primary focus of the study reported here, the composition of this sample does have the benefit of providing information about informational texts experiences in two distinct settings.

In 7 of the 10 school districts, participating schools were selected at random from among all district elementary schools. In the other 3 districts, selection procedures were adjusted to help ensure the most purely low- or high-SES population possible: (a) one school in a high-SES district was eliminated because it served a substantially lower SES population through a special arrangement; (b) a subset of schools in a low-SES district were eliminated because they contained a higher SES population according to district administrators' judgments and information such as school lunch data; and (c) schools in one low-SES district were selected at random from within each school zone, as zones constituted a meaningful level of organization in the district. Of 19 elementary schools initially contacted about participating in the study, a total of 18 consented; the declining elementary school was replaced by an alternate selected at random.

Within 17 of the 19 elementary schools, a single first-grade classroom was selected at random for possible participation in the study. In the 18th elementary school *two* classrooms were selected at random for participation in the study due to the lack of availability of a second elementary school in that district (that district was selected at random from among the high-SES districts to be the one with two participating classrooms within a single school). In the 19th elementary school, which had some bilingual first-grade classrooms, the participating classroom was selected at random from among the *nonbilingual* classrooms only, as I believed that the participation of a bilingual classroom could raise confounding issues and diminish generalizability of the study. Seventeen of the 20 classroom teachers initially contacted agreed to participate in the study. The other three classrooms (one high-SES, two low-SES) were replaced by alternate classrooms chosen at random.

Each teacher who agreed to participate in the study received a letter containing guidelines and information about the study. This letter provided teachers with general information about the study without revealing details, such as hypotheses about the scarcity of informational texts that might affect their instruction in ways detrimental to the validity of study findings. I requested in the letter, as well as verbally, that, as much as possible, teachers go about their activities as though I were not there. The fact that I often seemed to be looking at texts, rather than the teacher or students, may have further discouraged uncharacteristic practices during observation days. Teachers generally characterized observation days as fairly typical: on a scale of 1 to 5 (with 5 being most typical), teachers' mean rating for observation days was 4.40 [low-SES: 4.35 (SD = 0.49); high-SES: 4.44 (SD = 0.39), $t(17)$ = 0.44, two-tailed p = 0.66 (see *Data Analysis Procedures* for details about testing procedures)].

Teachers had an average of 18.2 years of teaching experience (low-SES: 15.1, high-SES: 21.2) and 10.4 years experience teaching first grade (low-SES: 8.3, high-SES: 12.4). All teachers were female. The racial and ethnic composition of participating classrooms varied. High-SES classrooms were mostly white, with a few minority students in some cases; low-SES classrooms each included some white, some African American, and some Latino students, although in widely varying proportions. Some classes included students from other racial and ethnic groups, but generally in small numbers. This sample was not designed nor is it adequate to make comparisons among schools that serve primarily students of a particular racial or ethnic group.

Data Collection Procedures

Each classroom was visited for four full days over the course of a school year. Observation days were spread throughout the school year and across days of the week in order to decrease the likelihood that a particular unit of study or weekday routine would unduly impact the overall findings for that classroom. The order of observations for the first round of visits was determined at random. Subsequent observation dates were scheduled by maintaining roughly the original order but making small adjustments as needed for pragmatic reasons (vacation dates, field trips, etc.).

My stance during classroom visits was strictly as observer; I did not attempt to participate in classroom activities or interact with students. Rather I was occupied much or all of the time recording information about the following: (a) print on classroom walls and other surfaces, (b) print materials in the classroom library, and (c) any classroom activities that involved print in any way. This included making descriptive notes about texts and activities as well as conducting preliminary coding of texts and activities (a preliminary coding system had been developed during a pilot of the procedures); coding was completed, checked, and refined following visits to the classrooms. Because much coding did occur on site, coding procedures are discussed in this section of this paper.

Displayed print.

Text on classroom walls or other surfaces (known hereafter as *displayed* print) was recorded. This included any text directed at students (as opposed to the teacher or parents), semipermanent in nature (as opposed to notes appearing briefly on the chalkboard as part of a particular classroom activity), and displayed in some way (as opposed to a stack of papers ready to go home). It did not include books that were displayed, as data about those was collected during examination of the classroom libraries (see later discussion). Texts were defined as "the entirety of a linguistic communication" (Harris & Hodges, 1995, p. 255) and thus sometimes had more than one physical piece, as in an alphabet frieze made of 26 pieces of paper but coded as one text. Authorship was considered in determining what constituted a text so that, for example, a set of 20 name tags made by the teacher constituted one text, but if each of 20 students made his/her own name tag, that was coded as 20 texts. Other examples of displayed texts included rules, lunch menus, greeting cards, labels, calendars, model spelling tests, posters identifying the names of different shapes, colors, or sounds, lists of class jobs, and maps. Each text was coded for text type or genre. The text's function, as well as linguistic features, was considered. Comparison of a second researcher's coding of displayed print in four classrooms during one visit each yielded a mean interrater reliability estimate of 90.5% for number of texts and 99.6% for whether or not text was informational (although this interrater reliability estimate should be interpreted with some caution, as there were relatively few even arguably informational texts encountered during the reliability check process). None of the items counted by one of us but not by the other had been coded as informational. A total of 6,023 different pieces of displayed print were counted and coded for genre over the course of the study.

Classroom library.

Text in the classroom library was recorded. On visit one, this included all books and magazines presently available to the class. Thus, it did not include

any books or magazines the teacher was keeping in storage or otherwise deemed off-limits to students. It also did not include any textbooks, basal readers, school library books, or other materials kept in individual students' desks, and available only to that individual student. However, if such materials were shelved as part of the classroom library, and available to the class for reading material, they were recorded. Also recorded were books that were only temporarily stored in individual students' desks (e.g., because a student was saving the book to read during sustained silent reading time) but actually from and soon to return to the classroom library collection available to all students (this sometimes necessitated looking in students' desks or cubbies). On visits two, three, and four, any books and magazines that I determined (by referencing past notes and teacher input) were *newly* available to students were counted, where availability was defined in the same way as described previously. On all visits, I recorded information about the location of each book including whether it was fully displayed (i.e., had all or almost all of its front cover visible). This allowed me to determine both the number of information books displayed and how that number compared to the rate of display of other kinds of books in the classroom library.

As many books and magazines as possible were coded for text type or genre. In cases in which it was not possible to code all of the materials in a library, due to time limitations, coding was conducted in such a way as to be as representative as possible. If books in different parts of the classroom library seemed to differ in kind, I made sure to code a representative proportion of books from each part of the library, by such means as coding every fifth book encountered. Comparison of a second researcher's coding of four classroom libraries, one visit each, yielded an mean interrater reliability estimate of 97.9% for whether the text was informational. A total of 18,393 books and magazines were counted over the course of the study; 12,160 of them were coded for genre. Those that I did not have time to code for genre were coded as miscellaneous.

Written language activities

Information about any activity that occurred during regular class time and involved written language in any way was recorded. Activities that occurred during lunch, recess, and like times were not observed or recorded. Activities that occurred during specials (gym, art, etc.) were observed and recorded, but using different procedures, as explained later in this section. Among regular class time activities, information recorded about each activity included (a) the genre of text included in the activity, (b) what was done with the text (read, written, etc.), and (c) the length of the activity in minutes. Collection of information about the length of the activity allowed for both reporting raw amounts of time spent with informational texts and for reporting time spent with informational texts as a percentage of time spent in school, in class, or in class with any form of written language. The use of time as a base unit analysis also facilitated comparability across districts, classrooms, and days (Durkin, 1978–79; 1987).

The length of activities was measured from the time the majority of students were involved in the activity to the time the majority of the students were no longer involved in the activity. For example, if the teacher read aloud to the students, timing was conducted from the beginning to the end of the read-aloud event, and the genre of the book read aloud was coded/counted for that number of minutes. If students were expected to be completing a worksheet at their seats, timing was conducted from the time the majority of

students began the worksheet to the time the majority of students completed the worksheet (or were expected to stop working on the worksheet, such as when it was time for lunch), and the genre of the worksheet text (usually just *worksheet*) was coded/counted for that number of minutes. Other examples of texts used during written language activity times include calendars, biographies, graphs, globes, poems, lists, math word problems, and so on. For the purposes of this paper, the important distinction is, of course, between those texts that were coded as informational, narrative-informational, or informational-poetic, and those that were not.

During times in which different students were expected to be doing different things, such as when students were divided into reading or math groups, I timed the overall time spent in groups, and as much information as possible about each group's print activities—most notably whether print was involved and, if it was, the types of text that were used. However, it was not possible to account for written language activity of each group simultaneously on a minute-by-minute basis. Thus, these situations are analyzed separately, as explained in the following section. Finally, during times when all students were expected to be doing the same thing, but the texts used within the sanctioned activity varied, such as when all students were expected to be reading a book silently but what book they were reading was their choice, I recorded the total time of the activity and then coded the genre employed as various. In these cases I typically made some descriptive notes about overall impressions of the types of text involved.

Observations were made during a total of 79 school days (I was unable to observe during a fourth visit to one of the high-SES classrooms). These included half or early release days only in cases in which this was a regular part of the district's schedule; for example, in one district, every Wednesday was an early release day. In total, I observed 27,674 minutes of school time, 23.06 hours per classroom on average. Of this, 19,046 minutes were spent in class (not involved in specials such as art or gym, not at recess, and so on) and of the time spent in class 12,790 minutes, or an average of 10.66 hours per classroom, were spent with written language. All minutes spent with written language were coded for the genre(s) employed.

A second researcher coded written language activities during all or part of one visit each to four classrooms (two low-SES, two high-SES). This amounted to 1,220 minutes of school time, including 860 minutes of class time. Our mean interrater agreement for total minutes of whole-class written language activity time was 97.3%. Among whole-class written language activity time that we both coded—492 minutes in total—our mean interrater agreement was 99.6% for whether the text was informational (although this interrater reliability estimate should be interpreted with some caution, as there were very few minutes of time spent with even arguably informational texts during the 860 minutes of class time observed for the reliability check).

Specials

When permitted by specials teachers (in all but a few cases), I also observed students during specials. I recorded as much information as possible about any specials activities involving print in any way and, when the special was held outside the regular classroom (in the gym, for example), about print on the walls and other surfaces, and any books or magazines in the room available to students. Given the brevity of specials, it was difficult to record this

information as carefully or thoroughly as during regular class time, but the records are certainly sufficient to indicate whether specials constituted a significant source of informational text exposure and experience for students.

Data Analysis Procedures

Coding described above was entered into three databases—one for displayed print data, one for classroom library data, and one for written language activity data. Analyses proceeded from there.

Displayed print.

The total number of displayed texts recorded across all visits and classrooms was tallied, counting those that appeared on more than one consecutive visit only once each. The total number of informational displayed texts was also tallied. The number of informational displayed texts was calculated as a percentage of total displayed texts, first at the classroom level, and then across classrooms. Descriptive notes about informational displayed texts observed were reviewed as well for the purpose of identifying common examples of such texts.

Classroom library.

The total number of books and magazines coded for genre was tallied. Also tallied was the total number of books and magazines coded as informational. The ratio of texts coded as informational to all texts coded for genre was determined. This ratio was then applied to the total number of books and magazines in the classroom library (including those I was unable to code for genre) to provide an estimate of the number of informational texts per classroom and per child. In the per child calculations, each classroom's class size, in the case of visit one, or mean class size, in the case of visits two through four, was divided by the estimated number of informational texts in that classroom. The resulting percentages were then averaged across classrooms within socioeconomic setting (low-SES and high-SES).

The total number of books that were coded as fully displayed (i.e., with all or nearly all of the front cover of the book visible) was counted, as was the number of information books that were fully displayed. The percentage of fully displayed books coded as informational was calculated. In addition, descriptive notes about the topics of displayed books (e.g., whether they were related to a theme of study) were reviewed.

Written language activities.

The total number of minutes spent in whole-class written language activities was tallied, as was the total number of minutes spent with informational text. Time spent with informational text was then calculated as a percentage of the following: (a) time spent with written language as a whole class, (b) time spent with written language in general (including time in which students were divided into doing different things), (c) time in class, and (d) time in school. Descriptive notes about activities that occurred when students were divided into groups doing different things were examined carefully for any activities involving informational text. The number of these activities was quantified, though their length in minutes was not, for reasons explained previously.

Search and find techniques in the database were used to identify all activities that involved informational texts. Descriptive notes for each of these activities were examined to identify the most common kinds of informational text activities observed. Notes were also examined for any uses of informational texts during group times.

Low- and high-SES comparison.

A multivariate F-test through MANOVA comparing low- and high-SES classrooms was conducted for the following variables: (a) number of minutes spent with informational text, (b) number of informational texts in classroom libraries on visit one, (c) number of informational texts newly available to students in classroom libraries on visits two through four, and (d) number of informational texts among displayed print. This test was conducted at the classroom level (not by days), thus N=20. The test indicated SES differences at a $p < .05$ level of statistical significance, $F(4, 15) = 4.25$, $p < .05$. An F-test of the corresponding variables in percentage form (percentage of the classroom library devoted to information books, etc.) was also conducted. This test indicated SES differences at the $p < .10$ level of statistical significance, $F(4, 15) = 2.70$. On the basis of these tests, t-tests for SES differences in individual variables were conducted and are reported throughout the *Results* section of this paper. Because this is a planned comparison study, statistical significance was considered to be reached when two-tailed $p < .10$. Population variances for variables in the study are, of course, unknown. I took a conservative approach in assuming these variances to be unequal and using the Welch-Aspin t-test procedure. For all tests, two-tailed p-values were used.

Results

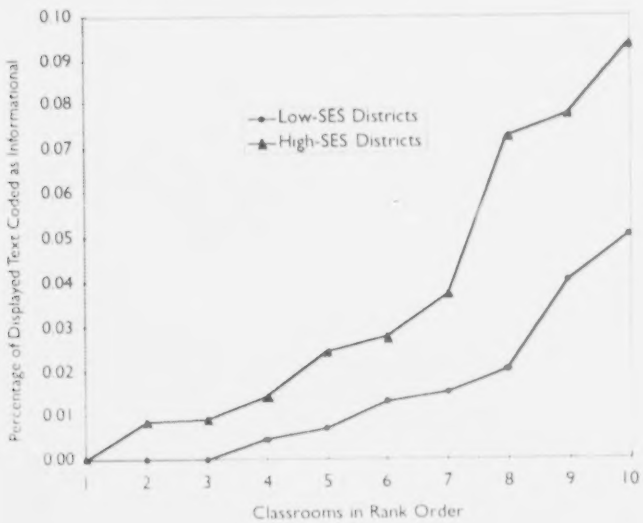
Results of this study reveal an overall scarcity of informational text in these first-grade classrooms. As detailed in the following sections, there was little informational text among displayed print, in classroom libraries, and in classroom written language activities. The scarcity of informational text was particularly acute in the low-SES classrooms.

Displayed Print

There was little informational text on classroom walls and other surfaces. Indeed, of all texts counted across the four visits, classrooms displayed a mean of only 9.4 informational texts on classroom walls and other surfaces, and 4 classrooms displayed no informational text at all. In percentage terms, a mean of only 2.6% of texts on walls and other surfaces met the definition of informational text being used in this study. As shown in Figure 1, no more than 10% of any individual classroom's displayed text was informational. For low-SES classrooms the mean percentage of informational text displayed was 1.5%; for high-SES classrooms the mean percentage was 3.6%, $t(14) = 1.80$, $p < .10$. Because low-SES classrooms typically had fewer displayed texts to begin with, this meant that low-SES classrooms had a mean of only 4.3 infor-

mational texts displayed across four visits, as compared to a mean of 14.5 informational texts for high-SES classrooms, $t(12) = 1.88, p < .10$.

Figure 1: The percentage of displayed texts coded as informational calculated at the classroom level, by SES, $t(14) = 1.80, p < .10$.



One rare example of display of informational text occurred in a classroom in which students had written reports on a topic of their choice. Report titles included "How Did the Titanic Sink?", "How Fast Can Cheetahs Run?", and "Slavery." Reports varied in complexity, but all included many features of informational texts. In another classroom a teacher had written and posted informational text related to items in the room that she or students had brought in, such as plants, a piece of bark, and different types of seeds. For example, next to a citron plant the teacher had posted "Citron / The Citron is a semi-tropical plant. It makes a sharp smelling oil which is used in making perfume, soap, and insect repellent." Later in the year in this same classroom, student-generated informational texts were posted around the classrooms. Related to a unit on whales, every text began "The important thing about whales is. . ." but from there texts varied in their presentation of information about whale classification, habitat, eating habits, and so on. On the day I observed, several children were observed reading their peers' whale texts and proudly pointing out their own. Commercially produced informational texts about whales were also posted throughout the room.

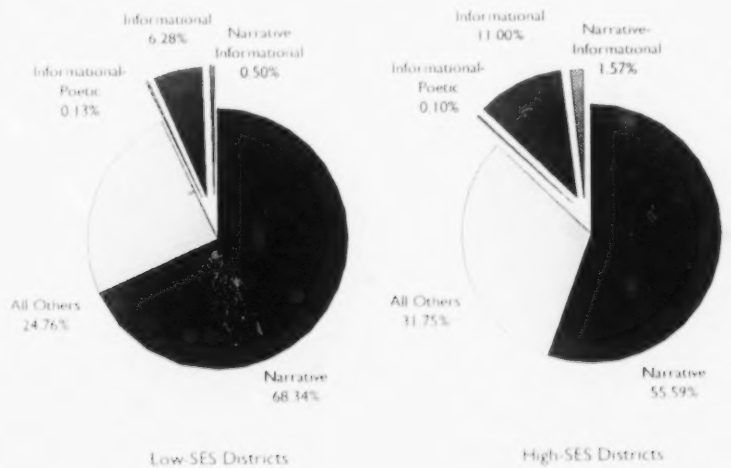
Classroom Library

Informational texts were also scarce in the classroom libraries of classrooms studied. Informational texts of any kind constituted a mean of only 9.8% of the classroom libraries as recorded on visit one. In terms of actual books,

this constituted a mean of only 59.1 informational texts per classroom available to students on this visit. The vast majority of these books were coded as straight informational (50.2 per classroom), though some were judged narrative-informational (8.2 per classroom), and a few as informational-poetic (0.66 books per room). On several occasions I noted a topic of study in the classroom, such as senses, teeth, or spring, and found few or no informational texts on that topic either displayed or shelved in the classroom library. Typically, relatively easy-to-read information books, such as *On the Go* by Ann Morris (1990), *Make Mine Ice Cream* by Melvin Berger (1993a), or *Spider* by David Hawcock and Lee Montgomery (1994), were especially rare.

The scarcity of informational texts in classroom libraries was relatively more acute in the low-SES classrooms. Several factors contributed to this. First, there were many more books and magazines overall in the high-SES classroom libraries as compared to the low-SES classrooms libraries. The high-SES classroom libraries had a mean of 738 books, while the low-SES classroom libraries had a mean of nearly 40% less than that, or 449 books and magazines per classroom. With fewer books overall, one would expect fewer information books.

Figure 2: The proportion of informational texts in classroom libraries on visit 1 calculated at the classroom level, by SES, $t(17) = 2.22$, two-tailed $p < .05$.



Second, however, there was actually a much smaller *proportion* of informational text in the low-SES classroom libraries. As shown in Figure 2, while a mean of 12.7% of the books in the high-SES classroom libraries was informational, only slightly more than half that proportion—6.9%—of books in the low-SES classroom libraries was informational in type. Third, mean student enrollment as recorded on visit one was nearly four students higher for low-SES district classrooms than for classrooms in high-SES districts. Thus, when calculating in terms of mean number of information books *per student*, as Fractor, Woodruff, Martinez, and Teale (1993) suggested, students in low-SES classrooms have even fewer information books available to them (see Table 2).

Table 2: Mean Number of Informational Books in the Classroom Library Per Student, by District SES*

	All Books, Visit 1		Newly Available Books, Visits 2–4†	
Type of Text	Low-SES Districts	High-SES Districts	Low-SES Districts	High-SES Districts
Informational	1.20 (1.17)	3.28 (1.82)‡	0.61 (0.77)	1.94 (1.14)‡
Informational-Poetic	0.01 (0.04)	0.04 (0.08)	0.01 (0.02)	0.07 (0.11)
Narrative-Informational	0.11 (0.20)	0.58 (0.80)	0.11 (0.14)	0.45 (0.19)‡

* Note: Values were calculated at the classroom level.

† Figures are for all three visits combined.

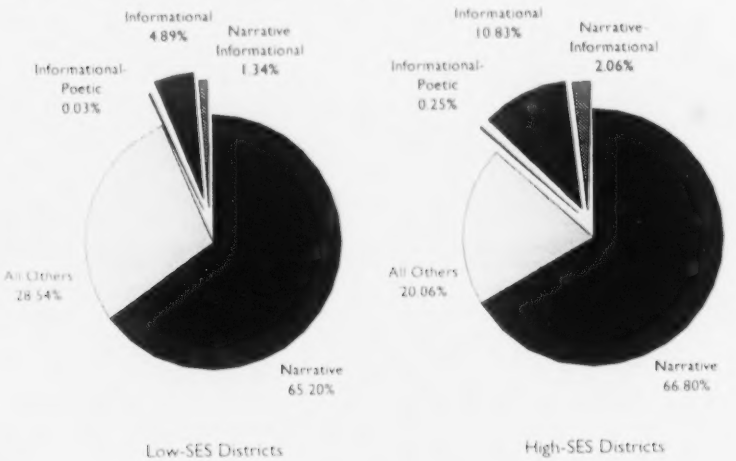
‡ Two-tailed $p < .01$.

Data regarding books newly available to students on visits two through four presented a similar picture. Relatively few of the books added to classroom libraries over the course of the year were informational. Of books present in the classroom libraries on visits two, three, or four that were not present in the classroom libraries on visit one, a mean of only 9.7% were informational. This amounts to a mean of 35.3 information books newly available to students as recorded on all three visits total spread across the school year (29.1 informational, 5.5 narrative-informational, 0.76 informational-poetic). Again, informational texts were particularly scarce in the low-SES classrooms. There were many more books newly available to students in high-SES settings (a mean of 210 in the low-SES versus 443 newly available books in the high-SES settings across the three visits); a greater proportion of the newly available books in high-SES classrooms were informational (see Figure 3); and the fact that there were more students in the low-SES classrooms on average meant that the books per student measure was especially low for students in low-SES settings (see Table 2).

In the area of classroom libraries, there is substantial variation between classrooms in the inclusion of informational texts. On visit one, the proportion of the classroom library devoted to informational text ranged from a low of 0.6% in one classroom to a high of 25.0% in another. On visits two through four this ranged from a low of 0.0% to a high of 23.2%. Similarly, the number of informational texts available to students varied from 1.0 to 201.8 per classroom on visit one and from 0 to 111.6 per classroom newly available on visits two through four combined. Thus, children in some classrooms may find few or no informational texts in their classroom libraries, while children in other classrooms may find a considerable number of these texts.

In addition to the informational genres discussed above, the case of what I term *periodical* genres should be noted. With few exceptions, I coded any magazines or newspapers in the classroom library as periodicals. Periodicals were characterized as having a variety of different genres or subgenres within them. In some cases periodicals contain relatively few informational pieces (e.g., most issues of *Cricket Magazine*), but in other cases periodicals contain a great deal of informational text (e.g., most issues of *Ranger Rick Magazine*). Thus, in some cases, periodicals, while coded as a separate category, could have provided another medium for informational text exposure.

Figure 3: The proportion of informational texts newly available in classroom libraries on visits 2–4 calculated at the classroom level, by SES, $t(17) = 2.96$, two-tailed $p < .01$.



Here again, however, low-SES students were provided with less potential exposure to informational texts, as periodicals constituted a much greater proportion of the high-SES classroom libraries—on visit one: 1.75% (SD = 4.50) in low-SES classrooms versus 10.9% (SD = 12.0) in high-SES classrooms, $t(11) = 2.27$, $p < .05$; on visits two through four among newly available texts: 0.34% (SD = 0.82) versus 0.78% (SD = 1.37) in high-SES classrooms, $t(15) = 0.876$, *ns*.

Table 3: Mean Number and Percentage of Fully Displayed Books That Are Informational, by District SES

	District Type			
	Low-SES		High-SES	
Books and Magazines	***M* (*SD*)**	***M*% (*SD*)**	***M* (*SD*)**	***M*% (*SD*)**
All available, visit 1 Fully displayed	0.4 (0.7)	4.2 (10.4)	4.9 (5.5)‡	25.2 (21.1)‡
Newly available, visits 2–4 Fully displayed, mean per visit	0.6 (0.8)	9.9 (14.3)†	3.6 (2.5)†	22.5 (13.6)†

* Two-tailed $p < .05$
† Two-tailed $p < .01$
‡ Two-tailed $p < .10$

Interestingly, as shown in Table 3, informational texts from the classroom library were sometimes displayed disproportionately often. That is, for example, although a mean of only 12.7% of the books in the high-SES classroom library on visit 1 were informational, a mean of 25.2% of the books fully displayed on visit 1 were informational in type. In contrast, however, a disproportionately small number of informational texts from the classroom library

were fully displayed in low-SES classrooms (4.9% displayed versus 6.9% in library). Among the newly-available texts on visits two through four, both low- and high-SES classrooms displayed a disproportionately large number of informational texts. As illustrated in Table 3, however, given how few informational texts there were in many of the classrooms to begin with, the disproportionate display of informational text in the aforementioned cases still often amounted to little informational text displayed in raw terms.

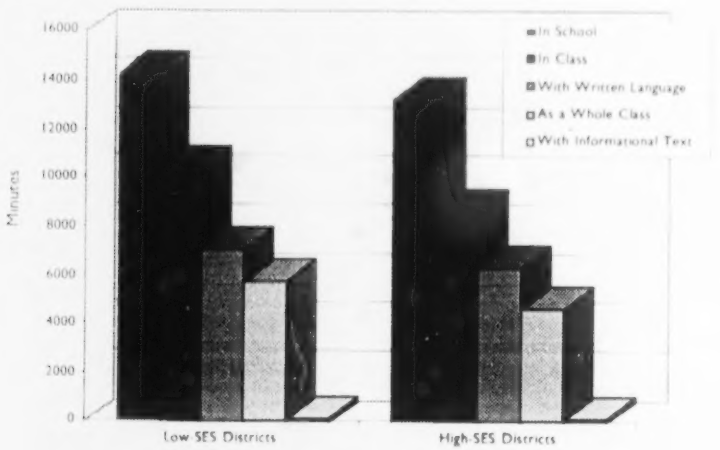
Written Language Activities

Perhaps more important than the extent to which informational texts are available in the classroom environment is the extent to which they are actually used in classroom activities. Here again, informational texts were scarce.

Informational text during whole-class written language activity time.

In all 79 days of observation combined, the total time spent with informational texts during whole-class written language activities was 282 minutes, or an average of 3.6 minutes per day. As illustrated in Figure 4, this is a very small fraction of the time students spent in school, in class, and with written language. Moreover, 7 of the 20 classrooms spent no time with informational texts in any of the 4 days each that they were observed; another 7 classrooms each spent an average of less than 5 minutes per day with informational texts, and the remaining 6 classrooms spent an average of no more than 10 minutes per day with informational forms.

Figure 4: Total minutes with informational texts relative to total time in written language activities, in class, and in school by SES, $t(17) = 0.75$, *ns*.



Although instances of informational text activities were rare, it may be helpful to provide descriptions of some I did observe as examples for readers. The most common activity involving informational text was teacher read aloud. A total of 117 minutes, 18 instances (13 high-SES, 5 low-SES) of

teacher read-aloud of informational text were recorded. Some of these episodes were quite brief, as when a teacher read a short passage from an article about turkeys; others were lengthier, as when teachers read aloud entire information books. Often, information books read aloud related to some unit of study. In one classroom, the book *Round and Round the Money Goes: What Money Is and How We Use It* (Berger, 1993b) was read as part of a unit on U.S. currency. In another classroom the teacher read aloud *The Honeymakers* (Gibbons, 1997) as part of a unit on insects. A related set of activities with informational text involved choral reading, in which students, and usually the teacher as well, read aloud together. One class choral-read a narrative-information book *The Seasons of Arnold's Apple Tree* (Gibbons, 1984) as part of a class unit on apples. Another class choral-read an informational poem, *Dogs and Cats and Bears and Bats*, as part of their unit on mammals. Group-reading of informational text accounted for another 36 minutes—5 instances (2 high SES, 3 low SES) of written language activity time across the school year.

A third common category of informational text activity involved semistructured writing of informational text, which constituted another 78 minutes during 6 instances (3 high SES, 3 low SES) of written language activity. For example, students in one classroom made their own version of a popular informational-poetic book: *A House Is a House for Me* (Hoberman, 1978). After having heard the book read aloud to them and having brainstormed a list of different homes (igloo, nest, cave, etc.), each student was provided with a paper reflecting the book's pattern:

A _____ is a house for a _____.
A _____ is a house for a _____.
A _____ is a house for a _____.
And a house is a house for me.

Students' completed pages were compiled to make a class book. In another class, students were assigned to write a book about signs of spring. The teacher provided students with the title of the book and a class-brainstormed list of signs of and facts about spring. Students chose from among items on this list (and anything else they had thought of) to develop their compositions. In another class, students were asked to write three things they had learned about Mary McLeod Bethune from an assembly they had previously attended. The three remaining occasions of semistructured informational writing are described below.

A few of the informational text activities observed did illustrate some of the reasons why scholars have argued that informational text experiences are important. For example, in a classroom in which students had been studying about outer space, the teacher read aloud the information book *Is There Life in Outer Space?* (Branley, 1984) and then the imaginative fictional narrative *Space Case* (Marshall, 1980). Throughout the readings the teacher led discussions about distinguishing what is real from what is not and the use of written material in drawing these distinctions.

Kamil and Lane (1997) identified learning to evaluate the truth value of text as one important reason to involve informational text in early literacy curricula. Kamil and Lane also identified as important learning to read only what is necessary in informational texts. The notion of selective reading was also underscored in a few of the informational text activities observed. For exam-

ple, in one classroom, students were having difficulty solving a word problem about the shape of the moon on a particular day of the month. The teacher led the students to go back to an information book they had looked at a previous day, find the relevant passage and illustration, and use the information there to solve the problem. In another classroom, the teacher read passages of *The Amazing Dandelion* (Selsam & Wexler, 1977) that were specifically relevant to dandelion reproductive processes, the topic of study. Later, when students were asked to "draw them [pictures of different phases of the dandelion reproductive process] like scientists," a student asked to see one key illustration in the book again to aid in the illustrating, demonstrating the student's understanding of selective use of informational text.

In one classroom, both the notions of selective reading and of evaluating the truth value of text were communicated through a series of read-aloud activities. As part of a unit on arctic animals, students had been studying penguins. In one afternoon devoted to penguin study, the teacher read aloud penguin-related passages from the information book *Life in the Polar Regions* (Newbridge, 1994), penguin-related passages of informational text downloaded from the World Wide Web, and a list of myths about penguins, also downloaded from the Web. Through these selective readings from multiple sources of informational text and through a discussion contrasting the myths about penguins with the other materials, the teacher highlighted differences in the truth values of texts, commenting about one myth that "They didn't research it. They didn't read books to find out."

Sometimes when informational texts were employed, it was actually in the service of narrative texts. For example, on three occasions the informational writing task was to write, as a group with the teacher as a scribe, facts about an author (the task was indeed to list facts, this was not constructed as biographical writing). In each case the author being written about was known for his/her *narrative* texts. In a related case, a teacher had been working with her reading group on the topic of spiders, based on a unit from the Houghton Mifflin series (1996). In the most in-depth reading group work with informational text observed in this study, the teacher reminded students of an information book on spiders (*Spiders*, Podendorf, 1982) that she had read on a previous day; created a webbing about spiders with students; showed and discussed with students a diagram of the anatomy of a spider and map of where in the U.S. spiders live; and shared with students a poster showing different types of spiders. Following these activities, the teacher asked students, "Why have we been studying spiders?" Students responses included such things as because spiders are interesting and because spiders are helpful to humans. After several responses the teacher told students that these were not the reasons they had been studying spiders. Instead, she said, they had been studying spiders because they had been reading *The Itsy Bitsy Spider* (Houghton Mifflin, 1996), a narrative song book included in their basal reading series (Houghton Mifflin, 1996). Thus, the value and function of the informational reading was somewhat undermined.

Informational text during non-whole-class times.

The spiders unit example notwithstanding, informational texts were also scarce during reading groups and other non-whole-class times of the school day. Among small groups other than reading groups there were no occasions of informational text use in the 79 full days of observation. In reading groups, I observed informational text being used in any way only seven times (five high-SES, two low-SES), only five of which involved students

themselves reading or writing. Thus, during times most clearly designed to teach children to read, children were typically not taught to read informational text. Rather, learning to read typically meant learning to read fictional stories, or simple descriptive text ("I like apples. I like pears. . .").

In one exceptional case, a reading group—the highest in the class—was twice observed interacting with informational text. On one occasion the group round-robin-read a narrative-informational piece entitled *Little Tugs and Big Boats* from the MacMillan (1987) basal reading series. On another occasion the group round-robin-read an informational piece called *Animal Families*, also from the MacMillan (1987) basal series. Prior to and throughout this reading, the teacher led discussion around the theme that people in families help one another in different ways and that animal families do this too. Students were encouraged to share examples of ways in which people in their own families help one another and to read the text for examples of helping behaviors in animal families.

In another classroom, a less difficult informational text was employed with a reading group. The text, called *Garbage* (Iversen, 1994), had a simple, predictable structure—"Some people burn their garbage / Some people compost their garbage" and so on—which students successfully group-read. The text linked closely to an ongoing class unit on waste management, particularly recycling strategies; through discussion, the teacher and students in the group made these links explicit. Occasions such as these, however, were rare. Thus, except for a few small groups of students on a few occasions, the 282 minutes of time spent with informational texts cited previously constitutes the totality of organized in-class time spent with informational texts in 79 full days of observation across 20 classrooms.

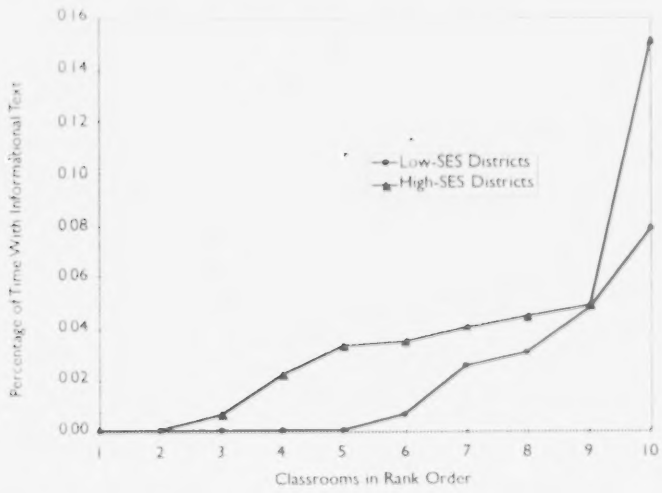
Informational text during time with various genres.

Recall that when students were all expected to be doing the same thing, but the texts used within the sanctioned activity varied, the genre was coded as *various*. It is possible that during such times some students may have spent additional time with informational texts not accounted for in the figures previously cited. However, descriptive notes suggest that this did not provide a substantial additional source of informational text experience. During sustained silent reading times, for example, students could choose to read or look at information books. However, they were constrained by the fact that there were few informational texts in the classroom library, and that few such texts were displayed or even present in the library. Notably, on those limited occasions in which students were observed accessing informational text during reading times, they often seemed to be highly engaged. On several occasions, groups of students were observed excitedly discussing and attempting to read information books on high interest topics such as snakes and insects. On another occasion, a student approached the teacher to point out that two information books he had been reading about dinosaurs had the same illustration. The teacher took the opportunity to talk with the student about how sometimes authors share information with one another and learn from the books that others have written. There were also occasions in which students brought informational reading material from home to share during sharing time. Students seemed to enjoy communicating their interest in the material to classmates and teachers.

Individual choice during writing times presented a varied picture. In some classrooms, there was little or no writing choice time and thus little or no

additional informational text experience for individual students. In other classrooms there was more choice time for writing, but the writing choices were somewhat constrained. In fact, in several classrooms the constraints were that students could only write stories (the teachers' term) or in some cases, only true stories (again, the teachers' term). In cases of this kind I still coded the genre as various because it was not always clear what the teacher included as stories and in several cases I observed students in these classrooms writing something other than stories, usually some sort of descriptive text. In only one classroom I observed was the writing of informational texts during writing choice time clearly sanctioned. In this classroom, the front of students' writing folders had a list of "Topics I Know a Lot About." Students were encouraged to write on these topics, which resulted not only in narratives of personal experience but also in informational texts on topics such as Beanie Babies, hockey, and the science museum. In a second classroom one of the students' writing options was an expert story (the teacher's term), which I gathered based on the teacher's explanations was, despite its name, a form of non-narrative, informational text (see Christie, 1984, for a discussion relevant to this usage of the term story). Finally, there were classrooms in which students could write anything they wanted. I observed little spontaneous informational writing during these times. This contrasts with some reports of spontaneous expository writing among young children (Chapman, 1995; Newkirk, 1989). However, given how little exposure to informational texts was provided to students in these same classrooms, and the important connections between expository reading and writing (e.g., Moss, Leone, & DiPillo, 1997), this is not entirely surprising.

Figure 5: The percentage of whole-class written language activity time spent with informational texts calculated at the classroom level, by SES $t(15) = 1.18$, *ns*.



SES differences in written language activities with informational text.

Again, as shown in Figure 3, there was less inclusion of informational texts in the low-SES districts' classrooms, although differences in this case do not reach a level of statistical significance. Students in low-SES classrooms spent less time with informational text in classroom written language activities even though, in raw terms, they actually spent more time than students in high-SES classrooms in school, in class, and with written language. In percentage terms, in low-SES classrooms a mean of 1.9% of the time spent with written language (as a whole class) involved informational texts; in high-SES classrooms, 3.8% of time spent with written language involved informational texts in some way. As shown in Figure 5, half the low-SES classrooms spent no time at all with informational text in the four full days observed, as compared to one fifth of the high-SES classrooms. Similarly, during non-whole-class times, I observed informational text being used five times in high-SES classrooms and only two times in low-SES settings.

Specials

Not surprisingly, specials observed during the course of this study very rarely included informational text in their activities or, in most cases, in their displayed print or print resources.

If Not Informational Texts, What Genres Were Common in Classrooms?

Among displayed print, the most common genres recorded were word-level items such as labels and children's names. Among extended texts on classroom walls and other surfaces, narrative and descriptive texts were among the most common. In the classroom libraries, as previously illustrated in Figures 1 and 2, the overwhelmingly more common genres were narratives.

Table 4: Categories of Text Commonly Used in Classroom Written Language Activities, by District SES*

District Type					
Low-SES			High-SES		
Text Category	*M*%	*SD*	Text Category	*M*%	*SD*
Worksheets	21.5	10.2	Depends upon student ("Various")	14.7	10.5‡
Individual letters, words, sentences	17.3	10.8	Narratives	13.1	5.3
Narratives	15.9	7.7	Worksheets	12.6	7.1‡
Descriptive text	4.5	4.2	Individual letters, words, sentences	7.0	9.0‡

* Note: Asterisks indicate differences between low- and high-SES classrooms in use of that text genre.
† Two-tailed $p < .01$.
‡ Two-tailed $p < .05$.

particularly fictional narrative (as opposed to true stories). In classroom written language activities narrative texts were again among the most commonly used, as shown in Table 4. As the Table indicates, some forms of text were well-represented in the written language activities of the classrooms observed; informational text, however, was not among them.

Discussion

Summary

Results of this study provide empirical confirmation of the suspected paucity of informational texts in the early grades. Across the 20 classrooms included in this study, there was relatively little informational text in classroom libraries, on classroom walls or other surfaces, and in classroom written language activities. These findings are cause for concern both because of the missed opportunity to prepare students for informational reading and writing they will encounter in later schooling and life, and for the missed opportunity to use informational text to motivate more students' interest in literacy in their present lives. Of particular concern is the fact that informational text was particularly scarce in the classrooms in low-SES settings. In this study, students with less socioeconomic capital were offered fewer opportunities to develop this important form of semiotic capital—the ability to read and write informational texts.

Limitations

Four limitations of this study should be noted. First, the design of this study does include some clustering of classrooms within school districts. That is, there are, in some cases, multiple study classrooms located within a single school district. To the extent that the district itself influences the variables studied at the classroom level (e.g., a reading program mandated at the district level may affect the types of text observed at the classroom level), the generalizability of the data is affected. The impact of this limitation is mitigated somewhat, however, by the fact that there were several different school districts involved (four low-SES, six high-SES) and by the fact that there is little clustering at the school level (only one school had more than one classroom participating in the study). Further, I noticed little commonality among classrooms within a district that seemed attributable to characteristics of that district. For example, I observed no single science text or approach within a district that would result in the use (or nonuse) of a standard amount of informational scientific text across classrooms. Classroom and SES-level variables seemed to have a far greater impact.

A second and more significant limitation of this study is its geographical specificity. All districts observed were located in the state of Massachusetts

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and within a relatively small geographic area within Massachusetts. The districts, schools, and classrooms in this study may have certain things in common because of their geographic and political proximity. For example, average school spending in Massachusetts is lower than in many other states (Morgan, Morgan, & Uhlig, 1998) and, thus, schools in Massachusetts may have fewer books in general, and information books in particular, than schools in other states. Similarly, socioeconomic differences in the presence of informational text may be more or less pronounced in Massachusetts than they are elsewhere. Research in other geographic regions would have to be conducted to investigate these possibilities.

A third limitation of this study was the limited analysis of informational text use in small group and individual work times within and outside of the classroom. As explained previously, when different groups of students or individual students were expected to be doing different things, such as when students were divided into reading groups, I tried to record as much information as I could about what each group or individual was doing. This was sometimes difficult, and it is possible that I missed some interactions with informational texts during these times. More importantly, the interactions with informational texts that I did observe during these times were not included in the overall totals for time spent with informational text, as there was no satisfactory way to account for only a fraction of the class working with informational text at a particular time. Rather, these interactions were analyzed and discussed separately (see *Informational text during non-whole-class times*). Although there were few interactions with informational text during the small-group and individual work times, at least as far as I was able to observe, this is nonetheless a limitation that should be borne in mind.

Finally, the way in which informational text was defined in this study had a direct impact on the results. A different definition of informational text, broader or more narrow than the one used here, would likely yield different results. Thus, the results of this study should always be read through the definition of informational text used.

Conclusions

Several conclusions can be tentatively drawn from this study. First, those who are calling for substantial attention to informational text in the early grades (e.g., Christie, 1987a; Freeman & Person, 1992; Hiebert & Fisher, 1990; Lemke, 1994; Littlefair, 1991; Newkirk, 1989; Pappas, 1991a; Sanacore, 1991) have apparently not succeeded in sufficiently impacting classroom practice. In the first-grade classrooms studied, informational text was rare and, in some classrooms, almost nonexistent. A stronger, more comprehensive approach to increasing attention to informational text in the early grades is needed (see later discussion). Second, theories about the primacy of narrative in genre development, though increasingly questionable from an empirical perspective (e.g., Caswell & Duke, 1998; Christie, 1987a, 1987b; Donovan, 1996; Duke & Kays, 1998; Hicks, 1995; Newkirk, 1987; Pappas, 1991b, 1993), still appear to have a hold on early schooling. As reported earlier, narrative text was relatively common among extended text on classroom walls and other surfaces, the majority of texts in the classroom

libraries were narrative, and narrative forms were among the most common in classroom written language activities. In contrast, informational text was rarely found on classroom walls and other surfaces, made up only a small portion of classroom libraries, was uncommon in classroom written language activities, and was almost never employed in classroom reading instruction. A growing research base attests to the fact that narrative is not the only form of text from and about which young children can learn. The observed inattention to informational text in first grade cannot be justified on the basis that young children cannot handle informational text forms.

A third conclusion that can be drawn from this study is that content area instruction does not necessarily provide substantial informational text experience in first grade. In the context of schooling, informational texts are largely associated with content area instruction, as in science and social studies. Thus, one might think that neglect of informational genres in early literacy curricula is made up for by inclusion of these forms in science, social studies, and other disciplines. However, this study, unlike many other observational studies in the literacy field, examined literacy experiences offered to students throughout the entire school day, across the curriculum. Still, little use of informational text was observed.

Fourth, this study suggests that continued low levels of achievement in informational reading and writing should not be attributed solely to the difficulty of these forms of text. Rather, there is now greater reason to hypothesize that students perform poorly with informational text at least in part because they have insufficient experience with it. As Newkirk (1989) argued with regard to writing:

> Not unreasonably, then, we might attribute some of the difficulties that students experience with exposition to the virtual exclusion of this writing from the books that they must read. I suspect that, in some studies on report or persuasive writing, children are being asked to write a kind of discourse *that they have never read.* Little wonder that they have trouble. . . . [I]t is simplistic—or at least premature—to claim that this difficulty derives from the inherent difficulty of expository or argumentation or in the inherent limitations of students. (p. 29, emphasis in original)

Fifth, even the few informational text activities observed in this study speak to the potential of informational text to be a productive part of early grade curricula. As many examples described in this paper demonstrate, informational text can be a vehicle to gain, work through, and communicate knowledge about the natural and social world—a vehicle to inspire and attract students to literacy.

Finally, to the extent that the findings of this study hold true more widely, children attending school in low-SES districts are provided with even less access to and experience with informational text in school than their high-SES counterparts. Given the importance of being able to access and communicate information in our society, this is a very serious finding. The notion that those with more socioeconomic capital are schooled to possess relatively higher levels of this important form of cultural capital is troubling indeed.

The observed SES differences in informational text access and experience merit some additional thinking about the long-noted fourth-grade slump in reading achievement (Chall, et al., 1990). Traditionally, the fourth-grade slump has been explained as resulting from the increase in demand for expository reading and writing that is thought to occur around fourth grade. Perhaps one reason this slump is reportedly more pronounced among low-SES students is that they have had less pre-fourth-grade school experience with informational text forms. Similarly, perhaps more low-SES students would develop a stronger interest in reading if their first, critical years of schooling offered a less narrow reading diet.

Strategies for Addressing the Scarcity of Informational Text

In the following paragraphs, I suggest several strategies for addressing the scarcity of informational text in many early grade classrooms beyond simply calling for greater attention to these forms (an approach which has apparently been inadequate). First, we should encourage publishers of literacy programs, basal and otherwise, to incorporate more informational text into their materials. In the first-grade classrooms studied, far more time was devoted to language arts than to any other curriculum domain, and commercial literacy programs were used for part or most of literacy instruction in many classrooms. Given that basal, and perhaps other literacy programs, include little informational text (Hoffman et al., 1994; Moss & Newton, 1998), they contribute to the overall scarcity of informational text observed. By exerting influence on basal publishers and publishers of other materials aimed at schools (e.g. The Wright Group), we can have an influence on the types of texts to which students are exposed in school.

Relatedly, curricular mandates and reform projects may provide a mechanism for addressing the scarcity of informational text. For example, including specific calls for informational literacy in state standards for the early grades may influence local reading series adoptions toward series that include more informational text or push local curriculum development projects to include greater attention to informational text forms. We should urge educators and officials at the local and state levels to involve informational literacy in their mandates and reforms.

Teacher training is another avenue through which to address the scarcity of informational text in early grade classrooms. We should share with preservice and practicing teachers the research demonstrating that young children, including those from low-SES settings (e.g., Caswell & Duke, 1998; Duke & Kays, 1998), can interact successfully with informational text. We should offer teachers some of the extant descriptions of early grade classrooms that have successfully incorporated informational text into their curricula (e.g., Duthie, 1996; Fisher, 1994; Kamil & Lane, 1997; Richgels, 1997).

Another strategy for increasing attention to informational text in the early grades is to link informational reading and writing to science achievement. As noted earlier, at least one study has shown a relationship between science achievement and informational reading and writing ability specifically (Bernhardt et al., 1995). It may be possible to take advantage of the recent upsurge of concern about science achievement brought about by the release

of the Third International Math and Science Survey (TIMSS) report, which shows low levels of science and mathematics achievement among American students as compared to those in other industrialized nations, to increase attention to informational text in inservices, standards, curricula, and other areas. We should investigate the possibility that affording greater attention to informational text in the early grades may not only improve students' later language arts performance, but their performance in later content area work as well.

Parents may provide another avenue for increasing attention to informational text in primary grade classrooms. Including more informational text in home reading programs, parent workshops, and family literacy programs may influence teachers to include more such texts in their classrooms, while at the same time increasing children's experience with such texts in their homes. In my experience, some parents of young children are not aware of informational text as a possible form of reading material for their children. However, once they begin reading information books and other informational texts with their children, their attitudes toward such text forms are positive. Parents have indicated that they find information books for children interesting, and many have remarked to me that they, as well as their children, learned something from the book or other material they had read. Informational texts may also be congruent with the types of text parents themselves read in their daily lives (see, e.g., Caswell & Duke, 1998). As more parents see informational literacy as important for their children, others in education may follow suit.

Another strategy for increasing inclusion of informational text in the early grades is to work on increasing the budget available for reading materials in the early grades. While no small task, bringing about increases in the amount of money districts spend on trade books and other reading materials might well result in greater inclusion of informational texts, particularly if budgetary increases were accompanied by professional development opportunities around building high-quality classroom libraries and working with a variety of genres. The purchase of new books would allow educators to take advantage of the high-quality information books now available for young children. This could be especially important in low-SES settings, where the overall number as well as the proportion of informational texts is smaller. This may be at least in part because of budgetary differences between the low- and high-SES districts. Recall that, among the districts in this study, mean expenditure was $1,800 more per pupil in high-SES districts than in low-SES districts. Money should be considered in addressing the scarcity of informational text in early grade classrooms.

Finally, a strategy for increasing attention to informational text that should be avoided: We should not attempt to increase time spent with informational text solely through decreasing attention to narrative text. This approach of pitting narrative against informational is ultimately self-defeating for those who count themselves as advocates for either type of text. Rather, at least with regard to written language activities, I urge us to look to other commonly-used forms of text, for which few scholars are advocates, to replace with informational text forms. For example, recall from Table 4 that worksheets constituted 21.51% of written language activity time in low-SES classrooms, and 12.62% of time in high-SES classrooms. Individual letters, words, and sentences, unembedded from any larger textual context, constituted

another 17.28% of time in low-SES classrooms (although much less time in the high-SES settings). I urge scholars to scrutinize the cost-benefit of these kinds of texts before encroaching upon class time spent with narrative texts.

Directions for Future Research

In the *Assumptions about Genre Development* section earlier in this paper, I suggest several areas regarding overall genre development in need of further study. There is also a need for further research looking specifically at the development of informational genre knowledge. Most critically, there is a need to investigate a fundamental premise on which calls for greater attention to informational texts rest—that greater experience with informational texts in the early grades actually does make a difference in children's fluency with these forms of text later in schooling. Relatedly, additional work is needed to test whether the presence of informational text in early grade classrooms actually does serve to motivate for literacy early in children's education. Studies in these areas should be conducted in low-SES classrooms, as well as other settings, to ascertain whether the fourth-grade slump and other phenomena are indeed productively addressed through greater attention to informational texts in the early grades.

Another area of research needed would compare different approaches to incorporating informational texts into early grade classrooms, to determine whether some practices have a more positive approach on students' literacy achievement than others. Some of the more common informational text experiences offered to students in this study, such as teacher read-aloud and semistructured writing, suggest areas for investigation. Also informative would be studies of different techniques for scaffolding informational reading among young learners, such as K-W-L (Know-Want to Know-Learned) (Ogle, 1986) or Question the Author (Beck, McKeown, Hamilton, & Kucan, 1997), and the contributions of explicit teaching of informational text features to young reader-writers' development.

A third area in need of investigation regards the difficult question of *how much* informational text experience is enough to prepare students for the demands of later schooling and life and to capture the attention of those students turned on to literacy through informational reading and writing tasks. Given that minutes in the day, books in the library, and print on the walls are all limited, we need to determine which genres should take priority and how much experience, access, and exposure should be devoted to those genres. This presents multiple challenges for research and suggests the need for serious conversation about what kinds of texts we most want students to read, write, use, and critique. We will need clear textual priorities to design schooling that will guide students though the mass of texts in the 21st century.

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About CIERA

The Center for the Improvement of Early Reading Achievement (CIERA) is the national center for research on early reading and represents a consortium of educators in five universities (University of Michigan, University of Virginia, and Michigan State University with University of Southern California and University of Minnesota), teacher educators, teachers, publishers of texts, tests, and technology, professional organizations, and schools and school districts across the United States. CIERA is supported under the Educational Research and Development Centers Program, PR/Award Number R305R70004, as administered by the Office of Educational Research and Improvement, U.S. Department of Education.

Mission. CIERA's mission is to improve the reading achievement of America's children by generating and disseminating theoretical, empirical, and practical solutions to persistent problems in the learning and teaching of beginning reading.

CIERA Research Model

The model that underlies CIERA's efforts acknowledges many influences on children's reading acquisition. The multiple influences on children's early reading acquisition can be represented in three successive layers, each yielding an area of inquiry of the CIERA scope of work. These three areas of inquiry each present a set of persistent problems in the learning and teaching of beginning reading.

CIERA INQUIRY 1
Readers and Texts

Characteristics of readers and texts and their relationship to early reading achievement. What are the characteristics of readers and texts that have the greatest influence on early success in reading? How can children's existing knowledge and classroom environments enhance the factors that make for success?

CIERA INQUIRY 2
Home and School

Home and school effects on early reading achievment. How do the contexts of homes, communities, classrooms, and schools support high levels of reading achievement among primary-level children? How can these contexts be enhanced to ensure high levels of reading achievement for all children?

CIERA INQUIRY 3
Policy and Profession

Policy and professional effects on early reading achievement. How can new teachers be initiated into the profession and experienced teachers be provided with the knowledge and dispositions to teach young children to read well? How do policies at all levels support or detract from providing all children with access to high levels of reading instruction?

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